

Appln. No. 09/388,010

TRW Docket No. 15-0195

microphone output signals, one of the microphones being designated a reference microphone and the others being designated data microphones, wherein the reference microphone receives acoustic signals both from the speech source and from the multiple noise sources;

a plurality of bandpass filters, one for each microphone, for eliminating from the microphone output signals a known spectral band containing noise;

a plurality of adaptive filters, one for each of the data microphones, for aligning each data microphone output signal with the output signal from the reference microphone; and

a signal summation circuit, for combining the filtered output signals from the microphones, whereby signal components resulting from the speech source combine coherently and signal components resulting from noise combine incoherently, to produce an increased signal-to-noise ratio without the need for beam steering or noise estimation techniques.

3. (Amended) A system as defined in claim 1, and further comprising speech conditioning circuitry coupled to the signal summation circuit, to reduce reverberation effects in the output signal by modifying the spectrum of the cumulative signal obtained from the signal summation circuit.

8. (Twice Amended) A method for improving detection of speech signals in noisy environments, the method comprising:

positioning a plurality of microphones to detect speech from a single speech source and noise from multiple sources, one of the microphones being designated a reference microphone and the others being designated data microphones,

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wherein the reference microphone receives acoustic signals both from the speech source and from the multiple noise sources;

generating microphone output signals in the microphones;

filtering the microphone output signals in a plurality of bandpass filters, one for each microphone, to eliminate from the microphone output signals a known spectral band containing noise;

adaptively filtering the microphone output signals in a plurality of adaptive filters, one for each of the data microphones, and thereby aligning each data microphone output signal with the output signal from the reference microphone; and

combining the adaptively filtered output signals from the microphones in a signal summation circuit, whereby signal components resulting from the speech source combine coherently and signal components resulting from noise combine incoherently, to produce an increased signal-to-noise ratio without the need for beam steering or noise estimation techniques.

8. (Amended) A method as defined in claim 6, and further comprising the step of conditioning the combined signals in speech conditioning circuitry coupled to the signal summation circuit, to reduce reverberation effects in the output signal by modifying the spectrum of the cumulative signal obtained from the signal summation circuit.